

APPENDIX 1

Cambridge Instruments QUANTIMET 970QUIPS/MX: V08.00

USER:

5 ROUTINE : CONWID

NAME = CONWID

DOES = % AREA. CONVOLUTED WIDTH. & ANISOTROPY

HISTOGRAMS

10 AUTH = B. KRESSNER

DATE = 17 FEB 85

DATE = 18 MAY 2000. RECENT ADAPTATION OF MBPAS3

COND = Cambridge MACROVIEWER: 50 mm EL-NIKOR Lens:

NO extension tubes: 4 100-watt floods; f/8; scanner pole posn 43cm;

15 Plate (1/4 in.) glass over 4x5 Polaroid Photos

Enter specimen identity

Scanner (No. 2 Chalnicon LV = 0.00 SENS = 2.33 PAUSE)

Load Shading Corrector (pattern -MBLOWN)

20 Calibrate User Specified (Cal Value = 2.962 microns per pixel)

SUBRTN STANDARD

TOTANISOT := 0.

TOTFIELDS := 0.

25 PERCAREA := 0.

TOTPERCAR := 0.

STAGEX := 10000.

STAGEY := 10000.

30 For MONTAGE = 1 to 2

Stage Move (STAGEX, STAGEY)

Stage Scan (X Y)

scan origin STAGEX STAGEY

35 field size 85500.0 56667.0

no of fields 3 4)

Scanner (No. 2 Chalnicon LV=0.00 SENS = 2.33 PAUSE)

40 For FIELD

Scanner (No. 2 Chalnicon AUTO-SENSITIVITY LV= 0.00)

Image Frame is Rectangle (X: 48, Y: 36, W: 800, H: 622,)

Live Frame is Standard Live Frame

45 Detect 2D (Darker than 32. Delin)

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Amend(OPEN by 1)
Psuedo-Colour Setup - Load Binary A of LUT GREY
    with colour (R 0,G 0,B 0)
Measure field - Parameters into array FIELD
5  ANISOT      := FIELD ANISOTROPY
   ANISOT      := 1./ ANISOT
   Distribute COUNT vs ANISOT (Units UNITS )
       into ANISOT from 0.00 to 1.50 into 15 bins, differential
10  TOTANISOT := TOTANISOT + ANISOT
   TOTFIELDS := TOTFIELDS + 1.
   PERCAREA  := 100. * FIELD AREA FRACT
   TOTPERCAR := TOTPERCAR + PERCAREA

   Distribute COUNT vs PERCAREA (Units % AREA )
15  into GRAPH1 from 0.00 to 90.00 into 15 bins. differential

   Live Frame is Standard Live Frame
   Measure feature AREA PERIMETER LENGTH ROUNDNESS
       into array FEATURE1 ( of 750 features and 7 parameters)
20  FEATURE1 CALC := ((4. * AREA/PI)^0.50000)
   FEATURE1 CALC.C := 0.9000 * ( ( 4. * AREA /
PERIMETER ) * ( 1. / ROUNDNESS) ^0.25000 )

25  FEATURE1 CALC.C := CALC.C / CAL.CONST
   Accept FEATURE1 CALC.C from 3. to 1000.
   FEATURE1 CALC.C := CALC.C * CAL.CONST

   Distribution of COUNT (Units COUNT ) v CALC.C (Units
30 MICRONS )
       from FEATURE1 in HISTO1 from 1.000 to 1000.
       in 15 bins (LOG)

   Distribution of AREA (Units SQ MICRONS) v CALC.C (Units
35 MICRONS )
       from FEATURE1 in HIST04 from 1.000 to 1000.
       in 15 bins (LOG)

40  FEATURE1 CALC := CALC / CAL.CONST
   Accept FEATURE1 CALC from 3. to 1000.
   FEATURES1 CALC := CALC * CAL.CONST

   Distribution of COUNT (Units COUNT ) v CALC (Units
45 MICRONS )
       from FEATURE1 in HIST03 from 1.000 to 1000.

```

Stage Step

Pause Message

Pause

Next

Print Distribution (GRAPH1, differential, bar chart, scale = 0.00)

Print " "

Print " "

Print " "

Print "PORE COUNT VS CON WIDTH (um)"

For LOOPCOUNT = 1 to 15

Print " "

Next

Print Distribution (HIST04, differential, bar chart, scale = 0.00)

Print "CUM PORE A% VS CON WIDTH (um)"

Print " "

Print " "

Print "# OF FIELDS vs ANISOTROPY"

Print " "

Print " "

Print "AVERAGE PORE ANISOTROPY (TAN THETA) = ",

Print " "

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Print "TOTAL SCANNED AREA = ", CL, FRAREA * FIELDNUM
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/ (1. * 10. ^8.). " SQ CM"

For LOOPCOUNT = 1 to 8

40 Print " "

Next

END OF PROGRAM

APPENDIX 2

Cambridge Instruments QUANTIMET 970QUIPS/MX: V08.02 USER:
ROUTINE: FUZZIO

5

NAME = FUZZB
DOES = PR/EL ON TISSUES; GETS HISTOGRAM
AUTH = B.E. KRESSNER
DATE = 10 DEC 97

10

COND = MACROVIEWER; DCI 12X12; FOLLIES PINK
FILTER; 3X3 MASK 60 MM MICRO-NIKKO,F/4; 20
MM EXTENSION TUBES; 2 PLATE (GLASS)
FIXTURE MICRO-NIKKOR AT FULL EXTENSION
FOR MAX MAG!!!!

15

ROTATE CAM 90 deg SO THAT IMAGE ON RIGHT
SIDE!!
ALLOWS TYPICAL PHOTO

Enter specimen identity

20

Scanner (No. 1 Chalnicon LV= 0.00 SENS= 2.36 PAUSE)
Load Shading Corrector(pattern - FUZZ7)
Calibrate User Specified (Cal Value - 9.709 microns per pixel)

SUBRTIN STANDARD

25

TOTPREL := 0.
TOTFIELDS := 0.
PHOTO := 0.
MEAN := 0.

30

If PHOTO = 1. then
Pause Message
WANT TYPICAL PHOTO (1 YES; 0 NO)?
Input PHOTO

35

Endif

If PHOTO = 1. then
Pause Message
INPUT MEAN VALUE FOR PR/EL
Input MEAN
Endif

40

For SAMPLE = 1 to 2

45

If SAMPLE = 1. then

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STAGEX      := 36000.
STAGEY      := 144000.
Stage Move (STAGEX,STAGEY)
Pause Message
5  please position fixture

Pause
STAGEX      := 120000.
STAGEY      := 144000.
10 Stage Move (STAGEX,STAGEY)
Pause Message
please focus
Detect 2D    (Darker than 54, Delin PAUSE)
STAGEX      := 36000.
15 STAGEY      := 144000.
Endif
If SAMPLE = 2. then
STAGEX      := 120000.
STAGEY      := 44000.
20 Stage Move (STAGEX,STAGEY)
Pause Message
please focus
Detect 2D    ( Darker than 54, Delin)
STAGEX      := 36000.
25 STAGEY      := 44000.
Endif
StageMove ( STAGEX,STAGEY)
Stage Scan (          X      Y
              scan origin STAGEX STAGEY
              field size  6410.0  78000.0
              no of fields  30      1 )
30

For FIELD
If TOTFIELDS = 30. then
35 Scanner (No. 1 Chalnicon AUTO-SENSITIVITY LV=0.01)
Endif
Live Frame is Standard Image Frame
Image Frame is Rectangle( X: 26, Y: 37, W: 823, H: 627, )

40 Scanner (No. 1 Chalnicon AUTO-SENSITIVITY LV= 0.01 )
Image Frame is Rectangle ( X: 48, Y: 37, W: 803, H: 627, )
Detect 2D    ( Darker than 54, Delin )
Amend( OPEN by 0 )
Measure field - Parameters into array FIELD
45 BEFORPERI := FIELD PERIMETER

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Amend( OPEN by 10)
Measure field - Parameters into array FIELD
AFTPERIM:= FIELD PERIMETER
5  PROVEREL:= ( ( BEFORPERI - AFTPERIM ) / ( I.FRAME.H *
    CAL.CONST ) )
    TOTPREL := TOTPREL + PROVEREL

10  TOTFIELDS:= TOTFIELDS + 1.

    If PHOTO ~ 1. then
    If PROVEREL > (0.95000 * MEAN ) then
    If PROVEREL < (1.0500 * MEAN ) then
15  Scanner (No. 1 Chalnicon AUTO-SENSITIVITY LV = 0.01 PAUSE)
    Detect 2D ( Darker than 53 and Lighter than 10, Delin PAUSE
    Endif
    Endif
    Endif

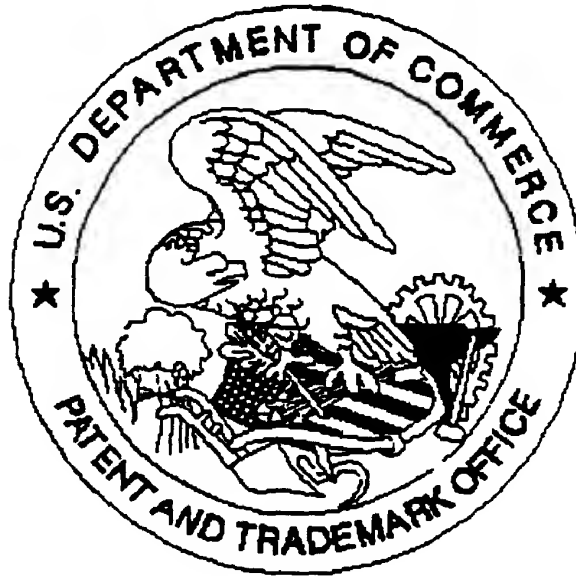
20  Distribute COUNT vs PROVEREL (Units MM/MM      )
        into GRAPH from 0.00 to 5.00 into 20 bins, differential

    Stage Step
25  Next FIELD
    Next

    Print " "
    Print "AVE PR-OVER-EL (UM/UM)=" , TOTPREL / TOTFIELDS
30  Print " "
    Print "TOTAL NUMBER OF FIELDS =" , TOTFIELDS
    Print " "
    Print "FIELD HEIGHT (MM)=" ,I.FRAME.H * CAL.CONST / 1000
    Print " "
35  Print " "
    Print Distribution ( GRAPH, differential, bar chart, scale= 0.00)
    For LOOPCOUNT = 1 to 26
    Print " "
    Next
40  END OF PROGRAM

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Pages 46-51 of the spec are appendix.

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